

## WHAT IS CLAIMED IS:

1. A composition of matter selected from:
- a) a substantially pure or recombinant polypeptide comprising at least three distinct nonoverlapping segments of at least four amino acids identical to segments of SEQ ID NO: 14;
  - b) a substantially pure or recombinant polypeptide comprising at least two distinct nonoverlapping segments of at least five amino acids identical to segments of SEQ ID NO: 14;
  - c) a natural sequence DCRS8 comprising mature SEQ ID NO: 14;
  - d) a fusion polypeptide comprising DCRS8 sequence;
  - e) a substantially pure or recombinant polypeptide comprising at least three distinct nonoverlapping segments of at least four amino acids identical to segments of SEQ ID NO: 17 or 20;
  - f) a substantially pure or recombinant polypeptide comprising at least two distinct nonoverlapping segments of at least five amino acids identical to segments of SEQ ID NO: 17 or 20;
  - g) a natural sequence DCRS9 comprising mature SEQ ID NO: 17 or 20; or
  - h) a fusion polypeptide comprising DCRS9 sequence.
2. The substantially pure or isolated antigenic polypeptide of Claim 1, wherein said distinct nonoverlapping segments of identity include:
- a) one of at least eight amino acids;
  - b) one of at least four amino acids and a second of at least five amino acids;
  - c) at least three segments of at least four, five, and six amino acids, or
  - d) one of at least twelve amino acids.
3. The composition of matter of Claim 1, wherein said:
- a) polypeptide:
    - i) comprises a mature sequence of Table 3 or 4;
    - ii) is an unglycosylated form of DCRS8 or DCRS9;
    - iii) is from a primate, such as a human;
    - iv) comprises at least seventeen amino acids of SEQ ID NO: 14 or 17;
    - v) exhibits at least four nonoverlapping segments of at least seven amino acids of SEQ ID NO: 14 or 17;
    - vi) is a natural allelic variant of DCRS8 or DCRS9;
    - vii) has a length at least about 30 amino acids;

- viii) exhibits at least two non-overlapping epitopes which are specific for a primate DCRS8 or DCRS9;
- ix) is glycosylated;
- x) has a molecular weight of at least 30 kD with natural glycosylation;
- xi) is a synthetic polypeptide;
- xii) is attached to a solid substrate;
- xiii) is conjugated to another chemical moiety;
- xiv) is a 5-fold or less substitution from natural sequence; or
- xv) is a deletion or insertion variant from a natural sequence.

4. A composition comprising:

- a) a substantially pure DCRS8 or DCRS9 and another cytokine receptor family member;
- b) a sterile DCRS8 or DCRS9 polypeptide of Claim 1;
- c) said DCRS8 or DCRS9 polypeptide of Claim 1 and a carrier, wherein said carrier is:
  - i) an aqueous compound, including water, saline, and/or buffer; and/or
  - ii) formulated for oral, rectal, nasal, topical, or parenteral administration.

5. The fusion polypeptide of Claim 1, comprising:

- a) mature protein sequence of Table 3 or 4;
- b) a detection or purification tag, including a FLAG, His6, or Ig sequence; or
- c) sequence of another cytokine receptor protein.

6. A kit comprising a polypeptide of Claim 1, and:

- a) a compartment comprising said protein or polypeptide; or
- b) instructions for use or disposal of reagents in said kit.

7. A binding compound comprising an antigen binding site from an antibody, which specifically binds to a natural DCRS8 or DCRS9 polypeptide of Claim 1, wherein:

- a) said binding compound is in a container;
- b) said DCRS8 or DCRS9 polypeptide is from a human;
- c) said binding compound is an Fv, Fab, or Fab2 fragment;
- d) said binding compound is conjugated to another chemical moiety; or
- e) said antibody:
  - i) is raised against a peptide sequence of a mature polypeptide of Table 3 or 4;

- ii) is raised against a mature DCRS8 or DCRS9;
- iii) is raised to a purified human DCRS8 or DCRS9;
- iv) is immunoselected;
- v) is a polyclonal antibody;
- vi) binds to a denatured DCRS8 or DCRS9;
- vii) exhibits a Kd to antigen of at least 30  $\mu$ M;
- viii) is attached to a solid substrate, including a bead or plastic membrane;
- ix) is in a sterile composition; or
- x) is detectably labeled, including a radioactive or fluorescent label.

8. A kit comprising said binding compound of Claim 7, and:

- a) a compartment comprising said binding compound; or
- b) instructions for use or disposal of reagents in said kit.

9. A method of producing an antigen:antibody complex, comprising contacting under appropriate conditions a primate DCRS8 or DCRS9 polypeptide with an antibody of Claim 7, thereby allowing said complex to form.

10. The method of Claim 9, wherein:

- a) said complex is purified from other cytokine receptors;
- b) said complex is purified from other antibody;
- c) said contacting is with a sample comprising an interferon;
- d) said contacting allows quantitative detection of said antigen;
- e) said contacting is with a sample comprising said antibody; or
- f) said contacting allows quantitative detection of said antibody.

11. A composition comprising:

- a) a sterile binding compound of Claim 7, or
- b) said binding compound of Claim 7 and a carrier, wherein said carrier is:
  - i) an aqueous compound, including water, saline, and/or buffer; and/or
  - ii) formulated for oral, rectal, nasal, topical, or parenteral administration.

12. An isolated or recombinant nucleic acid encoding said polypeptide of Claim 1, wherein said:

- a) DCRS8 or DCRS9 is from a human; or
- b) said nucleic acid:
  - i) encodes an antigenic peptide sequence of Table 3 or 4;

- ii) encodes a plurality of antigenic peptide sequences of Table 3 or 4;
- iii) exhibits identity over at least thirteen nucleotides to a natural cDNA encoding said segment;
- iv) is an expression vector;
- 5 v) further comprises an origin of replication;
- vi) is from a natural source;
- vii) comprises a detectable label;
- viii) comprises synthetic nucleotide sequence;
- ix) is less than 6 kb, preferably less than 3 kb;
- 10 x) is from a primate;
- xi) comprises a natural full length coding sequence;
- xii) is a hybridization probe for a gene encoding said DCRS8 or DCRS9;
- or
- xiii) is a PCR primer, PCR product, or mutagenesis primer.

13. A cell or tissue comprising said recombinant nucleic acid of Claim 12.

14. The cell of Claim 13, wherein said cell is:

- a) a prokaryotic cell;
- 20 b) a eukaryotic cell;
- c) a bacterial cell;
- d) a yeast cell;
- e) an insect cell;
- f) a mammalian cell;
- 25 g) a mouse cell;
- h) a primate cell; or
- i) a human cell.

15. A kit comprising said nucleic acid of Claim 12, and:

- 30 a) a compartment comprising said nucleic acid;
- b) a compartment further comprising a primate DCRS8 or DCRS9 polypeptide;
- or
- c) instructions for use or disposal of reagents in said kit.

35 16. A nucleic acid which:

- a) hybridizes under wash conditions of 30 minutes at 30° C and less than 2M salt to the coding portion of SEQ ID NO: 13 or 16; or

- b) exhibits identity over a stretch of at least about 30 nucleotides to a primate DCRS8 or DCRS9.

17. The nucleic acid of Claim 16, wherein:

- 5 a) said wash conditions are at 45° C and/or 500 mM salt; or  
b) said stretch is at least 55 nucleotides.

18. The nucleic acid of Claim 16, wherein:

- 10 a) said wash conditions are at 55° C and/or 150 mM salt; or  
b) said stretch is at least 75 nucleotides.

19. A method of modulating physiology or development of a cell or tissue culture cells comprising contacting said cell with an agonist or antagonist of a mammalian DCRS8 or DCRS9.

20. The method of Claim 19, wherein said cell is transformed with a nucleic acid encoding said DCRS8 or DCRS9 and another cytokine receptor subunit.

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